EXHIBIT 2

The Downside of the Boom

North Dakota took on the oversight of a multibillion-dollar oil industry with a regulatory system built on trust, warnings and second chances.

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WILLISTON, N.D. — In early August 2013, Arlene Skurupey of Blacksburg, Va., got an animated call from the normally taciturn farmer who rents her family land in Billings County, N.D. There had been an accident at the Skurupey 1-9H oil well. “Oh, my gosh, the gold is blowing,” she said he told her. “Bakken gold.”

It was the 11th blowout since 2006 at a North Dakota well operated by Continental Resources, the most prolific producer in the booming Bakken oil patch. Spewing some 173,250 gallons of potential pollutants, the eruption, undisclosed at the time, was serious enough to bring the Oklahoma-based company’s chairman and chief executive, Harold G. Hamm, to the remote scene.

It was not the first or most catastrophic blowout visited by Mr. Hamm, a sharecropper’s son who became the wealthiest oilman in America and energy adviser to Mitt Romney during the 2012 presidential campaign. Two years earlier, a towering derrick in Golden Valley County had erupted into flames and toppled, leaving three workers badly burned. “I was a human torch,” said the driller, Andrew J. Rohr.

Blowouts represent the riskiest failure in the oil business. Yet, despite these serious injuries and some 115,000 gallons spilled in those first 10 blowouts, the North Dakota Industrial Commission, which regulates the drilling and production of oil and gas, did not penalize Continental until the 11th.

The commission — the governor, attorney general and agriculture commissioner — imposed a $75,000 penalty. Earlier this year, though, the commission, as it often does, suspended 90 percent of the fine, settling for $7,500 after Continental blamed “an irresponsible supervisor” — just as it had blamed Mr. Rohr and his crew, contract workers, for the blowout that left them traumatized.

Since 2006, when advances in hydraulic fracturing — fracking — and horizontal drilling began unlocking a trove of sweet crude oil in the Bakken shale formation, North Dakota has shed its identity as an agricultural state in decline to become an oil powerhouse second only to Texas. A small state that believes in small government, it took on the oversight of a multibillion-dollar industry with a slender regulatory system built on neighborly trust, verbal warnings and second chances.

In recent years, as the boom really exploded, the number of reported spills, leaks, fires and blowouts has soared, with an increase in spillage that outpaces the increase in oil production, an investigation by The New York Times found. Yet, even as the state has hired more oil field

inspectors and imposed new regulations, forgiveness remains embedded in the Industrial Commission's approach to an industry that has given North Dakota the fastest-growing economy and lowest jobless rate in the country.

For those who champion fossil fuels as the key to America's energy independence, North Dakota is an unrivaled success, a place where fracking has provoked little of the divisive environmental debate that takes place elsewhere. Its state leaders rarely mention the underside of the boom and do not release even summary statistics about environmental incidents and enforcement measures.

Over the past nine months, using previously undisclosed and unanalyzed records, bolstered by scores of interviews in North Dakota, The Times has pieced together a detailed accounting of the industry's environmental record and the state's approach to managing the "carbon rush."

The Times found that the Industrial Commission wields its power to penalize the industry only as a last resort. It rarely pursues formal complaints and typically settles those for about 10 percent of the assessed penalties. Since 2006, the commission has collected an estimated $1.1 million in fines. This is a pittance compared with the $33 million (including some reimbursements for cleanups) collected by Texas' equivalent authority over roughly the same period, when Texas produced four times the oil.

"We're spoiling the child by sparing the rod," said Daryl Peterson, a farmer who has filed a complaint seeking to compel the state to punish oil companies for spills that contaminated his land. "We should be using the sword, not the feather."
North Dakota's oil and gas regulatory setup is highly unusual in that it puts three top elected officials directly in charge of an industry that, through its executives and political action committees, can and does contribute to the officials' campaigns. Mr. Hamm and other Continental officials, for instance, have contributed $39,900 to the commissioners since 2010. John B. Hess, chief executive of Hess Oil, the state's second-biggest oil producer, contributed $25,000 to Gov. Jack Dalrymple in 2012.

State regulators say they deliberately choose a collaborative rather than punitive approach because they view the large independent companies that dominate the Bakken as responsible and as their necessary allies in policing the oil fields. They prefer to work alongside industry to develop new guidelines or regulations when problems like overflowing waste, radioactive waste, leaking pipelines, and flaring gas become too glaring to ignore.

Mr. Dalrymple's office said in a statement: "The North Dakota Industrial Commission has adopted some of the most stringent oil and gas production regulations in the country to enhance protections for our water, air and land. At the same time, the state has significantly increased staffing to enforce environmental protections. Our track record is one of increased regulation and oversight."

Researchers who study government enforcement generally conclude that "the cooperative approach doesn't seem to generate results" while "the evidence shows that increased monitoring and increased enforcement will reduce the incidence of oil spills," said Mark A. Cohen, a

Vanderbilt University professor who led a team advising the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

With spills steadily rising in North Dakota, evidence gathered by The Times suggests that the cooperative approach is not working that well for the state, where the Industrial Commission shares industry oversight with the state's Health Department and federal agencies.

One environmental incident for every 11 wells in 2006, for instance, became one for every six last year, The Times found.

Through early October of this year, companies reported 3.8 million gallons spilled, nearly as much as in 2011 and 2012 combined.

Over all, more than 18.4 million gallons of oils and chemicals spilled, leaked or misted into the air, soil and waters of North Dakota from 2006 through early October 2014. (In addition, the oil industry reported spilling 5.2 million gallons of nontoxic substances, mostly fresh water, which can alter the environment and carry contaminants.)

The spill numbers derive from estimates, and sometimes serious underestimates, reported to the state by the industry. State officials, who rarely discuss them publicly, sometimes use them to present a rosier image. Over the summer, speaking to farmers in the town of Antler, Lynn D. Helms, the director of the Department of Mineral Resources, announced "a little bit of good news": The spill rate per well was "steady or down." In fact, the rate has risen sharply since the early days of the boom.

Presented with The Times's data analysis, and asked if the state was doing an effective job at preventing spills, Mr. Helms struck a more sober note. "We're doing O.K.," he said. "We're not doing great."

He noted it is a federal agency, the Pipeline and Hazardous Materials Safety Administration, that regulates oil transmission pipelines. "You can't use the spills P.H.M.S.A. was responsible for and conclude my approach to regulation is not working," he said.

Indeed, as the tangle of buried pipelines has grown, there have been no federal pipeline inspectors based in North Dakota. But there have been no state inspectors, either, to oversee the much larger network of gathering pipelines unregulated by the federal government — a fount of many spills.

Penalizing companies for every violation is imprudent and can be counterproductive, Mr. Helms said, potentially "leaving the citizens of North Dakota with enormous liabilities on their hands when bankrupt operators walk away."

Continental Resources hardly seems likely to walk away from its 1.2 million leased acres in the Bakken. It has reaped substantial profit from the boom, with $2.8 billion in net income from 2006 through 2013.

But the company, which has a former North Dakota governor on its board, has been treated with leniency by the Industrial Commission.

From 2006 through August, it reported more spills and environmental incidents (937) and a greater volume of spillage (1.6 million gallons) than any other operator. It spilled more per barrel of oil produced than any of the state's other major producers. Since 2006, however, the company has paid the Industrial Commission $20,000 out of $222,000 in assessed fines.

Continental said in a written response to questions that it was misleading to compare its spill record with that of other operators because "we are not aware other operators report spills as transparently and proactively as we do." It said that it had recovered the majority of what it spilled, and that penalty reductions came from providing the Industrial Commission "with precisely the information it needs to enforce its regulations fairly."
What Continental paid Mr. Rohr, the injured driller, is guarded by a confidentiality agreement negotiated after a jury was impaneled for a trial this September. His wife, Winnie, said she wished the trial had gone forward "so the truth could come out, but we just didn't have enough power to fight them."

Looking back now, one thing gnaws at her.

"You know what really bothered me?" Mrs. Rohr said. "Harold Hamm flew up to see the damage to the rig but didn't go see the guys who were burned."

Embracing the Oil Industry as Economic Salvation

Given the state's history of population loss and economic decline, state officials delighted in the arrival of oil companies eager to exploit the tremendous untapped potential of the primeval Bakken formation deep beneath the sweeping prairies and rugged badlands of western North Dakota.

Especially during the first years, officials were anxious that this oil boom, like previous ones, could be fleeting, that oil companies, if not embraced, could shift their rigs and capital investment to fields with less severe winters and better access to markets.

"There was a mentality that we should be helping things along, not getting in the way with regulations," said Todd Sattler, a lawyer who served as a state oil and gas hearing officer through mid-2011. "It wasn't blatant disregard for bad things, just permissive."

Mr. Sattler said he tried to establish a protocol for field investigations, preparing a three-page checklist of procedures, including how to conduct witness interviews. The response from the state's chief inspector, he said, was: "I'm not going to be a cop out there, Todd."

In 2006, the Industrial Commission issued 419 drilling permits, processing applications in five days. By 2011, when it handed out 1,927 permits, it was still managing to issue them in 10 days. At that point, concerned that the Environmental Protection Agency might establish a moratorium

on fracking — the legislature set aside $1 million to sue the E.P.A. — there was a desire to establish facts on the ground.

Some officials in western North Dakota challenged the accelerating pace. “It was so ragtag and breathless,” said Dan Kalil, the Williams County Commission chairman. “Infrastructure in every facet wasn’t able to keep up.”

Ron Ness, president of the North Dakota Petroleum Council, said: “It’s easy to say it’s been too fast, too much. But this is what North Dakotans have hoped for, prayed for.” Investors from all over the country are now drawn to tiny, remote places like Watford City, where “there wasn’t a damn thing” seven years ago, he said.

“We’ve got the largest-producing Cinnabon anywhere in the world,” he said. (The Williston Cinnabon, more precisely, has the highest sales in a travel plaza, the company said.)
In the first five years, the “slow, nasty drip, drip, drip” of routine spills — as Edmund Baker, environmental director for the Fort Berthold Reservation in the heart of the oil patch, calls it — went largely unnoticed and sometimes unreported to the authorities.

In the spring thaw of 2011, however, after a winter of record snowfall, scores of oil waste pits overflowed at once. The large, open pits, adjacent to rigs throughout the Bakken at that point, disgorged oil-based drilling mud that mixed with snowmelt and streamed across farmland and into stock ponds, creeks and river tributaries.

Farmers were horrified; the local news media took note. And, in concert with the development of a new regulation outlawing liquid waste pits, the Industrial Commission undertook its first — and so far only — crackdown on spills. It filed several dozen formal complaints against companies that, Mr. Helms said, had defied the Mineral Resources Department’s warning to take precautions to prevent the predicted overflows.

Hess Oil was one target. It paid its fines in full: $112,500.

Continental, like some other companies, disputed its responsibility.

Its lawyer, a former counsel to the Industrial Commission, proposed that consent agreements state that the overflows were caused by unforeseeable extreme weather. Instead, the agreements attributed the violations “in part” to bad weather “unforeseen by Continental.”

Still, the Industrial Commission accepted $12,500 rather than $125,000.

That fall, at a commission meeting in Bismarck, Mr. Helms explained the logic behind the waste pit settlements.

Most companies would make “a voluntary 10 percent payment” and 90 percent would be suspended for a year, during which the operator would have to “keep completely clean” of the offense, Mr. Helms said, according to the meeting minutes. This works, he added, because

"keeping that 90 percent hanging over their head for a year creates a culture change within the company."

Mr. Helms said this had been departmental practice since the early 2000s when officials were trying to prod Earl Schwartz of GoFor Oil — his logo was a gopher in a hard hat — to plug some wells and start production on others.

Sarah Vogel, a former Industrial Commission member, said she considered it a startling admission that current policy was based on "the treatment of a small wildcatter from an earlier era."

"It's absurd to compare an Earl Schwartz to a Hess or any of these other enormous companies worth billions," she said. "To me, announcing publicly that it is your practice to suspend the bulk of all fines makes a mockery of the whole enforcement system. Should we tell the general public that if they're caught speeding, the fine is $100, but they only have to pay $10? It's an invitation to violate the law."

Bearded and deliberative, Mr. Helms is a petroleum engineer by trade, with a hand that bears the burn scars of an industrial accident. The state's senior oil official since 2005, he previously worked at Texaco for two years and at Hess for 18.

To his critics, Mr. Helms personifies a cozy relationship between the commission and oil companies. His dual mission heightens this, they say, as he is compelled by statute both to promote "the greatest possible economic recovery of oil and gas" and to enforce regulations.

Mr. Helms, however, said that his background gives him access and authority, and that his job is to promote responsible development, not the industry.

"In order to effectively do that I have to be on a first-name basis with C.E.O.s and managers," he said. "If they didn't trust me, and if they expected every time they made a mistake they were going to get slapped with a great big fine or be singled out or profiled, I wouldn't get straight answers."

The commission has imposed its stiffest penalties on smaller companies. Last year, it fined Halek Operating, whose leader had a history of swindling investors in Texas, a record $1.5 million for a defective waste disposal well that threatened a town's water supply. But Halek has gone out of business, and the state is unlikely to obtain more than the $140,000 in bonds it has seized.

Mr. Helms said that problems in the oil patch were often the fault not of the major companies but of the contractors who do their physical labor.

"The large independents — the bread and butter of the North Dakota oil industry — really understand their social license to operate and really try to emphasize environment, health and safety," he said. "But there's a disconnect."

L. David Glatt, Mr. Helms's counterpart in the Health Department's environmental division, has voiced the same sentiment. Though the state's chief environmental regulator, he described himself on a radio show last year as "not a regulations guy" — after the host said that "the word 'regulation' is like Lucifer" in North Dakota.

Before the boom, Mr. Glatt said in an interview, the Health Department had "a very hands-on, personalized approach, going out and helping people solve their problems."

"Now with the oil boom bringing in people who are just here to make a living or make money," he said, "we are being forced to change our regulatory approach to in some cases a very heavy-handed one, which is a paradigm shift for us."

Judging by the data, the Health Department, overseen by civil servants and not elected officials, appears to have been tougher on the oil industry than the Industrial Commission has. It has collected over three-quarters of the fines levied, amounting to at least $4.1 million since 2006.

Still, most of that revenue derived from a single industrywide enforcement action that, Mr. Glatt said, the industry itself requested.

After years of underestimating volatile emissions from its oil storage tanks in the Bakken and allowing them to vent directly into the air, the industry "self-reported" the potential pollution and safety problem to the government.

A task force was formed; the companies devised a new model for estimating the emissions and pledged to control them through devices. And then they made a request: "They wanted fines to be collected by the state to reduce their exposure to lawsuits," Mr. Glatt said. "We said, 'Sure, we'd be more than happy to take your money.' "

The Health Department did not publicize that it collected record penalties for these violations last year: $2.64 million, including unprecedented sums like $418,500 from Hess and $305,400 from Continental.

"We are not wired like that," Mr. Glatt said. "It goes to the fact that, honestly, when I get to the point where I have to collect a penalty, I look at that as a failure on our part."

A Record Spill Puts the Focus on the Costs of a Boom

At her isolated farmhouse near Tioga, Patricia Jensen disarms guests — pipeline executives, oil spill cleaners — with a glistening berry pie fresh from the oven. She and her husband, Steven, are firm but nonconfrontational in their approach to what he calls the "ecological nightmare" in the backyard of the family's century-old homestead.

"We've kind of taken a route of not being too sour, but yet we're really concerned," Mr. Jensen said.

What happened to them last fall — considered the largest on-land oil spill in recent American history — confronted North Dakota with the potential costs of the boom.

It shined a light on the state government's lack of transparency when it went unreported to the public for 11 days. It raised awareness that spills of all magnitudes were daily and routine. It highlighted the inadequacy of pipeline monitoring.

And it made clear that even in the worst cases the authorities are hesitant to use punitive sanctions. More than a year after the spill, neither the federal nor the state government has penalized the company responsible, Tesoro Logistics of San Antonio.

"Clearly, they have impacted the groundwater system," Mr. Glatt said. "There will be an enforcement action. But we use a carrot and stick approach. The carrot is if you get into it and clean it quickly, the stick won't be as severe."

Late last September, Mr. Jensen was harvesting waist-high durum wheat when he found his combine's tires wet with an unmistakable sheen. His wife called the operator of a nearby well, which contacted Tesoro, and both companies immediately sent out representatives.

"It was dark out at this point," Mrs. Jensen said. "We went to drive wide around what we thought was the spill and realized that we were not at the edge of it. We were still in it."

Mr. Jensen continued: "There was a question of, well, whose line is it? It was squirting out of the ground. But the minute Tesoro shut its valve, there was a loud sucking sound."

In its initial report, Tesoro seriously underestimated the contamination. A week and a half later, after a "subsurface assessment" request by the state, it tripled its estimate to 20,600 barrels, or 865,200 gallons. The lost oil had soaked a large stretch — equal to about six football fields — of the windswept land where the Jensens run cattle and rotate crops like sunflowers and sunshine-yellow canola.

The spill was publicly disclosed only after local reporters learned of it, provoking an outcry from environmentalists that led to the creation of a spills website.

In Tioga, a preliminary investigation found a small hole in the pipeline that appeared to have been caused by lightning, said the federal pipeline administration, whose final investigation has yet to be completed.

That cast the incident as an act of nature, but Tesoro officials now acknowledge that the hole had gone undetected for as long as two months.

"How do you lose over 20,000 barrels of oil and not realize it?" Mr. Glatt said. "That does kind of boggle the mind a little bit."

In a statement to The Times, Tesoro expressed "deep regret."

“Our systems did not prevent the spill, and we find that unacceptable,” it said. “We have put additional systems and controls in place and are committed to operating a safe pipeline system.”

Before the leak sprang in July 2013, Tesoro had not conducted an internal inspection of that segment of pipeline for eight years. Federal officials had last inspected the Tesoro network in North Dakota in 2010.

Pipeline leaks are not the most common cause of spills; valve or piping connection problems are, The Times found. But they spew the greatest volume of oil and wastewater and are the most likely to cause pollution.

Unlike several other major oil-producing states, North Dakota has until now relied on federal inspectors — based in Kansas City, Mo., 950 miles from Tioga — to monitor all its oil transmission lines, interstate and intrastate.

At the time of the spill, Brian Kalk, chairman of the state Public Service Commission, felt keenly frustrated, he said: “The company was not as forthright as they should have been. Everybody in the state was asking what’s going on, and I didn’t have jurisdiction on this pipeline. I didn’t like it.”

As a result, Mr. Kalk’s commission is seeking to take over the monitoring of the crude oil transmission pipelines that travel solely within the state.

Transmission pipelines, which carry oil to market, are not the only problem, however. Until this year, no authority, federal or state, monitored what Mr. Helms estimates to be 18,000 miles of gathering pipelines, which transport oil and wastewater from wells to collection sites. In fact, the North Dakota government does not even know their precise locations.

But, with legislative permission, Mr. Helms is taking the gathering lines under his aegis and hiring the state’s first three hazardous-liquid pipeline inspectors.

In Tioga, the Jensens are inclined to look at the bright side, though 33 acres of their farmland have been cordoned off for an industrial cleanup operation expected to take at least another year. They are glad that their spill was oil, not wastewater — “There’s no cleaning up of that,” Mr. Jensen said — and hope it served as “an eye-opener.”

“The industry really wants to fight putting monitoring devices on pipelines, but it’s a no-brainer, seems like,” Mr. Jensen said. “The cost of monitoring equipment is obviously far cheaper than the cost of cleanup.”

Tesoro said the cleanup would cost more than an initial estimate of $4 million and “less than $25 million.” It hired a Canadian company, Nelson Environmental Remediation, to treat the contaminated soil by burning it on site in “thermal desorption units.”

“We’re kind of like the proctologists of the industry,” said Warren Nelson, the company’s vice president. “We deal with the problems nobody wants to talk about.”

From Wastewater Contamination, Sterilized Soil and Shriveled Crops

One August evening this year, after a barbecue dinner beneath an elaborate skull-and-antler chandelier in the Outlaw Shack at Antler Memorial Park, Mr. Helms and Mr. Glatt faced an audience of farmers disgruntled by the wastewater contamination of northwestern North Dakota.

Their corner of the state is like a cautionary tale. It is pocked with the remnants of 1980s oil production: abandoned wastewater ponds, some of which leached brine downward and outward, sterilizing the soil and shriveling crops. State officials have estimated it would cost $2 million each to reclaim what might amount to 1,000 ponds, said State Representative Marvin E. Nelson.

“Well, we have more than $2 billion in our Legacy Fund,” he said, referring to a set-aside fund containing oil tax revenues. “So why not take the legacy from this oil boom to fix the legacy from the last oil boom?”

Though the industry now disposes of oil field brine primarily by injecting it deep underground, it still needs to be transported to disposal wells and remains a stubborn pollution problem. For every barrel of oil, about 1.4 barrels of brine is produced, state officials say, and far more of it spills than does oil.

And while the industry calls it saltwater — “which makes it sound harmless, like something you would gargle with,” said Derrick Braaten, a lawyer who represents farmers — it is highly saline and can be laced with toxic metals and radioactive substances.

Three years ago, a farmer in the Antler audience experienced one of the largest oil field wastewater spills ever in North Dakota. A leaking wastewater line contaminated some 24 acres of farmland and eight surface ponds, and the site has yet to be restored to health.

After the leak was detected, cleanup crews pumped out two million gallons of severely contaminated water, with chloride levels 2,700 times higher than normal, and a generator was still pumping out contaminants this summer.

“Three years!” the farmer, Darwin Peterson, exclaimed at the meeting. “Three years, and this spill has been addressed in a Band-Aid fashion. Meanwhile, that 24 acres has expanded, with Mother Nature, to the neighbors. When is enough enough?”

State officials say the spill far exceeded the 12,600 gallons originally reported by the company, Petro Harvester, though it remains listed that way on the state’s spills website. Mr. Helms, in an email last year to his spokeswoman, Alison Ritter, estimated it at 332,000 gallons. Mr. Nelson, the legislator and agronomist, thinks it probably was three times that much.

The state has not yet penalized Petro Harvester.

Underlying the state's regulatory posture is the premise that spills are all but inevitable and will increase alongside increases in drilling. But that is not a universally shared perspective.

"There's this idea that spills are just the cost of doing business," said Amy Mall, a senior policy analyst with the Natural Resources Defense Council. "But there's no technical justification for all these spills. And it's not acceptable. It's just not. It just shows how poorly the oil and gas industry is doing its job, and that nobody is making them do it right."

To a skeptical audience in Antler, Mr. Helms proclaimed that North Dakota was "head and shoulders above our sister states" in the region for its vigilance as measured by the ratio of wells to inspectors, the frequency of inspections and the authority to fine up to $12,500 per offense a day.

He said that almost all problems found by his inspectors were corrected within 30 days of verbal warnings. Some 2,500 warnings were issued last year, Ms. Ritter said; only 4 percent resulted in a written violation and only nine complaints were filed (up from four in 2012).

In the park, Mr. Helms offered a boardroom-style PowerPoint presentation, including a graphic that he said contained the "good news" that the spill rate per well was steady or down.

His figures, however, provided to The Times later, show that the number of spills continued to grow faster than the number of wells — just not as fast as before. All told, the number of wells is up 200 percent and spills 650 percent since 2004.

The farmers in Antler said they assumed Mr. Helms's spills data was comprehensive, but he told The Times later that he was including only spills under his jurisdiction. That omitted hundreds of incidents, including the Jensens' spill and the 464,000 gallons of oil that gushed from a fiery train derailment near Casselton last December.

The most encouraging statistic, Mr. Helms told the farmers, was that a higher proportion of individual spills were being contained to production sites. That is true according to the numbers he uses. But, looking at the actual volume of pollutants and all reported spills, The Times found a decline, not an improvement, in spill containment — with 45 percent contained from 2011 to 2013, down from 62 percent in the previous three years.

Without engaging in any data analysis, the farmers in Antler were suspicious of the spill estimates because they were based on self-reporting by the industry. "You take the word of the operators? That's your first mistake," one man said, to laughter. They remarked that their own spills were often drastically underestimated on the state's spills website.

Indeed, The Times found scores of cases on that website where the release of pollutants was not just undercounted but marked as zero. One supposedly zero-volume wastewater spill in Bottineau County last year required the removal of 600 dump-truck loads of contaminated soil.

For a North Dakotan trying to make sense of the state's environmental and enforcement records, numbers are essentially inaccessible. The state spills site posts incidents in chronological order,

without summary statistics, and it is not searchable. Oil and gas enforcement data is not made public at all, unlike in Texas, where the legislature mandates quarterly reports.

The Times built a database to analyze the state's raw information from a variety of perspectives, including a company-by-company assessment. It found that companies in the Bakken spill at different rates. This suggests to some experts that companies could do more to prevent and minimize environmental incidents.

"Whether it's maintaining equipment properly, monitoring equipment routinely, training individuals well, having backup equipment on site or having containment machinery — there are all kinds of things that can be done," Professor Cohen of Vanderbilt said. "But they all require money and attention."

Statoil, a multinational company whose largest shareholder is the Norwegian government, now ranks as the state's fifth-biggest producer. With a professed goal of "zero incidents, zero releases," according to Russell Rankin, its regional manager, it has reported no blowouts and has the best record in the state among the major producers in terms of how many gallons of oil it produces for each incident.

Based on volume, Statoil has produced 9,000 gallons of oil for every gallon of spillage; Continental has produced 3,500. Statoil contained some 70 percent of its spill volume to production sites. Continental contained less than half, The Times found.

In its written response, Continental disputed The Times's "math," but did not respond further after it was sent a spreadsheet of reported incidents that formed the basis for the findings.

Continental, which on its website calls itself "America's oil champion," said it has "implemented a corporate policy focused on reporting, spill reduction and, ultimately, elimination." It emphasized that it was the largest producer in the Bakken and "managed the largest volume of liquids." It underscored that "our diligent spill response efforts have enabled us to recover the majority of all volumes spilled."

And, Continental said, The Times should not imply that "volumes spilled remain in the environment in perpetuity and that we and other operators have no concern for doing anything more than reporting spills as 'an inevitable byproduct of oil production.' "

The Golden Egg

When the Skurupey well blew out last summer, Continental waited some 10 hours to notify the local authorities.

"They should have called us a lot sooner, but when these things happen, the oil companies pretty much take over, " said Sheriff Dave Jurgens of Billings County. "They have their own security, and they don't let anybody on location, unless you're with Continental or the state Industrial Commission. And I totally understand why. It's specialized-type stuff."

The public never knew the blowout had occurred because the well, like many new wells, had been granted confidential status by the state for competitive reasons; almost everything except its existence was off the record for six months.

Oil, water and chemicals shot 40 feet into the air from the wellhead but did not ignite. One worker was injured with a broken finger and bruises to his head and chest, the sheriff said. “They didn’t call an ambulance, just put him in a pickup and took him to the E.R.,” he said. “That was not very wise on their part.”

The oil misted over hundreds of acres, contaminating hundreds of bales of hay and alfalfa fields.

“They redid the land, washed all the tanks,” Mrs. Skurupey said. “Continental was super-nice. They left no stones unturned, as far as I was concerned. They paid us all for damages, and we signed agreements that we wouldn’t sue.”

Defending itself against the commission’s enforcement action this year, Continental argued that its own investigation revealed that “an irresponsible supervisor’s callous disregard of” its “well-established standard operating procedures” caused the Skurupey blowout.

At the Williston courthouse in September, Continental’s lawyer, Steven J. Adams of Tulsa, Okla., placed the responsibility for the previous blowout in Golden Valley County squarely on Mr. Rohr and his crew, who worked for Cyclone Drilling of Wyoming.

“It was the Cyclone crew that failed to do its job,” he told the jury.

Mr. Rohr’s lawyer, Justin L. Williams of Corpus Christi, Tex., opened by suggesting that Continental prized speed over safety: “Pedal to the metal, no brakes, lives shattered.”

During the voir dire process, many prospective jurors had revealed just how interwoven their lives were not only with the oil industry, but also with Continental. Some had worked for or done business with Continental; others owned its stock or received royalty checks from Continental wells.

Asked if they had strong feelings about the oil boom, almost all, even those who saw the positive, raised their hands to say they thought it had had negative consequences, too. A landowner referred to oil sludge buried and flares burning on her property, a nurse to injured oil workers treated at her clinic, an oil field technician to a “hurry up and wait world” that put profits first.

The next morning, a settlement was reached.

Later, in a nearby hotel, sitting with his lawyers, his wife and a former co-worker, Mr. Rohr lifted his T-shirt to reveal what he had been prepared to show the jury: his pink, waffled back, patched together through skin grafts after the rig at the Beaver Creek State 1-36H well exploded into flames on July 24, 2011.

"My memories of it are bad," he said. "I seen a big, bright, white light, and I didn't think I'd make it out. And then that big blast hit me. I was a big ball of flame, running out of there, my safety glasses melting around my eyes. I thought I was blind. Dying."

Mr. Rohr, who is called A.J., stared into his coffee cup, crying.

Erick Hartse, 23, who had been his assistant driller and escaped injury in the blowout, winced. "I have a lot of guilt," he said. "I sent A.J. down to check the inside choke that day. It was per our blowout procedures, but I was the last one to see this guy unhurt, unscathed."

Mr. Rohr and two colleagues were airlifted to a burn center in Minneapolis. With serious burns over 60 percent of his body. Mr. Rohr spent a month hospitalized. Still in constant pain and reliant on painkillers, he has not returned to the oil fields, the only job he has ever known.

The two men and their boss, Wally Dschaak, said they thought from the start that the well, situated in a remote, serene spot about a mile from the Little Missouri River, was going to give them trouble.

"From the day we moved onto that miserable, slimy, dirty location, things had been fighting us," Mr. Hartse said.

Mr. Dschaak said, "That well was one step away from getting out of control at all times."

Continental, which declined to discuss the case, imported oil fire specialists from Texas to extinguish the blaze. Later, Cyclone sent Mr. Hartse to Wyoming to help build a replacement rig, he said, but did not allow him to accompany it back to North Dakota. "Continental wanted no part of anybody who was there that day," Mr. Hartse said.

"I understood Cyclone's position," he added. "You can't kill the goose that lays the golden egg."

Deborah Sontag reported from Williston, and Robert Gebeloff from New York. Michael Wines contributed reporting from Bismarck, N.D.

Sources: North Dakota Department of Health, analysis by The New York Times, Department of Mineral Resources of North Dakota, satellite imagery from Google

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Correction: November 30, 2014
An article last Sunday about the environmental record and state regulation of the North Dakota oil industry erroneously attributed a distinction to an oil spill last fall on the farm of Steven and Patricia Jensen near Tioga. It is considered the largest on-land oil spill in recent American history, not the largest ever.